

Reducing Risk of Diabetes Mellitus among Women: Role of mHealth in implementing Government of India Gestational Diabetes Management Guidelines

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Abstract

India significantly contributes to the global prevalence of Diabetes Mellitus as well as Gestational Diabetes Mellitus (GDM). GDM plays a major role in development of type 2 DM. There is a need to address this issue. Ministry of Health and Family Welfare has issued national guidelines for screening and management of GDM as a part of antenatal care. This involves screening, medical nutrition therapy, follow-up and use of anti-diabetic drugs; as required for the antenatal women. Regular follow-up, monitoring and counselling are the crucial aspects of this intervention. For proper implementation of these strategies, use of modern technology advancements like Mobile Health (mHealth) technology would be supportive. mHealth interventions have been evident in promoting health, disease management, and cost effective. Primary health care interventions especially antenatal and postnatal care combined with mHealth would ensure the effective control and management of the GDM.

Introduction

India is the country with the highest global prevalence of diabetes and a dubious reputation for being the world's diabetes capital, with approximately 50.8 million people affected by diabetes⁽¹⁾. Impaired Glucose Tolerance (IGT) that develops during pregnancy or is first noticed during pregnancy is known as Gestational Diabetes Mellitus (GDM). The projected rate of GDM in India, one of the world's most populated nations, is 10-14.3 %, far greater than the rate in the west⁽²⁾. According to the most recent statistics, GDM is becoming more common among pregnant women globally, with estimates ranging as high as 15%⁽³⁾. Primary healthcare management is inadequate, even though GDM plays a large role in the development of Type 2 Diabetes Mellitus (T2DM) later on⁽²⁾.

Although Diabetes Mellitus (DM) is neither severe nor crippling, it is linked to delivery problems and increases a woman's chance of developing type 2 diabetes by seven times⁽³⁾. T2DM diagnosis generally occurs within five years after the pregnancy that served as the index, and compared to women who had normoglycemic pregnancies. Additionally, they are more prone to obesity and cardiovascular illness, and their children are more likely to have diabetes and obesity. The risk of GDM and T2DM can be reduced by changing one's lifestyle to include more exercise and a healthier diet⁽⁴⁾.

Pregnant women who are found to have GDM are labeled as high-risk and referred to facilities with better standards of medical care for ongoing treatment. The implementation of a healthier life, improved patterns of healthcare seeking, improved self-care, and early detection and prevention of the

illness will result from antenatal women's awareness of GDM⁽¹⁾.

Guidelines for Screening, Diagnosis, and Management

The Ministry of Health and Family Welfare (MoHFW) has issued a national guideline to address the urgent need to prevent and minimize maternal and fetal morbidity related to GDM through universal screening and therapy of GDM as part of the basic prenatal package⁽²⁾. Two GDM tests should be performed during Antenatal Care (ANC). The initial tests should be performed when feasible during the first antenatal visit⁽²⁾. All expectant mothers who test positive for GDM for the first time should start Medical Nutrition Therapy (MNT) for two weeks. The woman has to walk or exercise for 30 minutes every day. Two hours of Post Prandial Blood Sugar (PPBS) (post-meal) should be performed after two weeks of MNT and exercise. If the result is < 120 mg/dL, repeat the test in accordance with the high-risk pregnancy protocol, which calls for eight tests (four regular tests and four additional). In the second and third trimesters, it is recommended to perform a minimum of one test each month. As recommended by the treating physician, additional follow-up tests can be performed. If the 2-hour PPBS is ≥ 120 mg/dL, metformin or insulin therapy should be begun as advised⁽²⁾.

What can be done?

Utilizing possibilities for early interventions is crucial, given the health hazards that T2DM poses. Although it is important to establish who is in charge of this task, follow-up may be conducted more effectively at the 6-week postpartum visit in primary care. Establishing a recall record and configuring a

computerized alerting system for primary health care are further recommendations for improving GDM follow-up. At the 6-week follow-up, a periodic weight assessment should also be taken into consideration. Weight loss treatments and lifestyle guidance should also be made available where necessary⁽⁵⁾.

Managing GDM well after diagnosis is essential for lowering the risk of unfavorable outcomes. Most poor perinatal outcomes are observed to be reduced when interventions, including diet control, exercise, blood glucose self-monitoring, and/or pharmaceutical treatment, are combined, as opposed to standard care. Applications, wearable sensors, social media, websites, and videoconferencing are examples of commonly utilized Mobile Health (mHealth) technologies. In a recent poll of 63 women in the United Kingdom (UK), the majority of whom had GDM, 43/63 (73%) reported using smartphones to find out about health issues or pregnancy. Just 16/63 (25%) voiced reservations about utilizing an app to track diabetes, indicating a need amongst women with GDM for technologically supported services⁽⁶⁾.

This assertion of the role of mHealth in GDM management can be supported by the high standards of conduct in qualitative research and patient and public involvement. The authors propose that a primary care-based intervention that fits into the visits of these women already attending, combined with mHealth technology, maybe a more economically advantageous strategy. Such mHealth therapies have the benefits of being somewhat inexpensive, adaptable in real-time to specific patients, and capable of gathering, analyzing, and relaying data to researchers. There is evidence that electronic pedometers can promote physical activity and diabetes management, and applications encouraging self-monitoring exercise and nutrition reduce waist circumference⁽⁷⁾.

The advantages of mHealth interventions include their low cost, ability to be tailored to specific requirements, and ability to send data to medical professionals. In order to further disease management and prevention, they can offer adaptable and scalable solutions⁽⁶⁾. mHealth therapies, according to a new comprehensive review, dramatically boost regular exercise and lower body fat. Therefore, mHealth could be incorporated into a behavior change strategy focused on primary care to lower the chance of developing T2DM in women with gestational diabetes⁽⁸⁾.

It is imperative to eliminate the disparity in indigenous perinatal outcomes, and essential to provide adequate accessibility and top-notch care during prenatal and postnatal periods. Given the established association between early childhood factors and chronic disease, it also presents a significant opportunity to prevent disease in adults. To ensure

the healthiest possible outcome for both mothers and their unborn children, antenatal care makes an effort to offer the appropriate screening, preventive or therapeutic measures, and information. Numerous studies show how community health centers' current systems are unable to provide access to frequent evidence-based monitoring and health information for pregnant or nursing patients. The results also emphasize the inconsistent national maternal healthcare standards to which all women must be entitled, which, if left unaddressed may continue to lead to inequities in maternity care and outcomes⁽⁹⁾.

Suppose the policy guidelines did not incorporate the requisite screening programs and therapy for Glycemic control or potential T2DM prevention, among many other Noncommunicable Diseases (NCDs), there might continue to be a vacuum in practice, and it would affect the results of Primary Health Center (PHC) services. The key to its successful integration is the Department of Health (DOH's) prioritization of GDM and mobilizing decision-makers to combat this extremely frequent ailment affecting mothers, babies, and societies. However, integrating GDM management with initiatives to prevent or delay T2DM would considerably raise the complexity of PHC⁽¹⁰⁾.

Conclusion

Therefore, given that T2DM is more likely to affect women with GDM, primary care services for these women should be improved. The Government of India guidelines for managing GDM should be properly implemented. Modern technological advancements like mHealth could be used to motivate women to monitor their blood sugar levels, change their lifestyles, and consult their doctors frequently to ensure their effective management.

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